

Amendments to the Drawings:

The attached Replacement Sheets of the drawings (2/14, 3/14, 13/14 and 14/14) include Figs. 2, 3, 13 and 14. These sheets replace the original sheets.

Applicants have amended Figs. 2, 3, 13 and 14 to add the legend "Prior Art".

Attachment: Replacement Sheets-2/14, 3/14 13/14 and 14/14

REMARKS

After the foregoing Amendment, claims 2 and 3, as amended and new claims 6 and 7 are pending in this application. Claims 1, 4 and 5 have been cancelled. Claims 2 and 3 have been amended in order to more particularly point out and distinctly claim what the Applicants regard as the invention. New claims 6 and 7 have been added for the purpose of more particularly pointing out and distinctly claiming what the Applicants regard as the invention.

The amendment made to claim 2 is fully supported by the description of the third embodiment which begins on page 25 and extends through page 29 of the application and by Figs. 8 and 9. The amendments made to claim 3 are fully supported by the description of the fourth embodiment which begins at the bottom of page 29 and extends to the middle of page 37 of the specification and by Figs. 10 and 11. New claim 6 is fully supported by the second embodiment which is described beginning at the bottom of page 19 and extending through the middle of page 25 of the specification and by Figs. 5-7. Similarly, new claim 7 is fully supported by the fifth embodiment which is described beginning at the middle of page 37 and extending through the top of page 42 of the specification and by Fig. 12. Accordingly, it is respectfully submitted that no new matter has been added as a result of the amendments made to claims 2 and 3 or as the result of the addition of new claims 6 and 7.

Title

In the Office Action, the title was objected to as not being descriptive. The title has now been amended to read "A Semiconductor Device for Outputting Data Read from a Read Only Storage Device." The amended title is believed to be adequately descriptive of the invention and therefore it is respectfully submitted that the objection to the title should be withdrawn.

Abstract of the Disclosure

In the Office Action, the Abstract of the Disclosure was objected to because it was not limited to a single paragraph of no more than 150 words. By the foregoing Amendment, the

original Abstract of the Disclosure has been cancelled and a substitute Abstract comprising a single paragraph of less than 150 words has been submitted on a separate Replacement Sheet. Accordingly, it is respectfully submitted that the objection to the Abstract of the Disclosure should be withdrawn.

Drawings

By the foregoing amendment to the drawings, Figs. 2, 3, 13 and 14 have been amended to include the legend "Prior Art." Replacement sheets including each of Figs. 2, 3, 13 and 14 are enclosed with this Amendment.

Request for Information

In paragraph 5 of the Office Action, the Examiner set forth a lengthy request for information regarding prior art and the identification of independent claim limitations. The Applicants respectfully respond to the request for information as follows:

1. The Applicants have provided in the Information Disclosure Statement filed with the application all known relevant prior art, and there is no additional prior art to be cited.
2. The following structural features set forth in the currently pending claims correspond to prior art elements in the background documentation:
 - a. Read only storage devices – claims 2, 3, 6 and 7.
 - b. Selecting signal lines – claims 2, 3, 6 and 7.
 - c. Address signal line – claims 2, 3, 6 and 7.
 - d. Address storage circuit – claims 2, 3, 6 and 7.
 - e. Data storage circuit – claims 2, 3, 6 and 7.
 - f. Switching circuit – claims 2, 3, 6 and 7.
 - g. Bit storage circuit – claim 6.
 - h. Rewritable storage device – claim 7.
3. A discussion of specific support with respect to each of amended claims 2 and 3 and new claims 6 and 7 is set forth above.

It is believed that the foregoing fully and adequately addresses the Examiner's request for information.

Formal Rejections

All the claims were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because of the inclusion of the terms "the output data" and "said two pieces of output data" which were said to lack an antecedent. By the foregoing Amendment, all of the objected-to language has been removed from amended claims 2 and 3, and the objected-to language does not appear in new claims 6 and 7. Accordingly, it is respectfully submitted that the rejection of the claims under 35 U.S.C. § 112 should be withdrawn.

Art Rejection

All of the claims were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,452,285 (Hotta). It was the position of the Examiner that the claimed semiconductor device having read only storage corresponds to the ROM shown in Fig. 2 of the Hotta patent, the claimed address storage circuit for storing address information of a defective memory cell corresponds to the addressed storage 8 of the Hotta patent, the claimed data storage circuit corresponds to data storage 9 of the Hotta patent and the claimed switching circuit corresponds to switching circuit 7 of the Hotta patent. For the reasons as set forth below, the Applicants respectfully traverse the rejection as it may be applied to amended claims 2 and 3 or to new claims 6 and 7.

In the semiconductor device according to amended claims 2 or 3, a plurality of read only storage devices share a single switching device (*i.e.*, have a single common switching device). The switching device outputs replacement data instead of original data from one of the plurality of read only storage devices if the original data is stored in memory cells including a defective memory cell. In order to perform the above function, all selecting signals, each of which selects one of the read only storage devices, are inputted into the switching device and an address storage circuit of the switching device detects whether or not the memory cells which store the

read only data of the storage device as selected by the selecting signals and the data corresponding to the selected read only storage device include a defective memory cell.

The semiconductor device according to claim 6 has a switching device which outputs replacement data instead of original data outputted from one of a plurality of read only storage devices, the original data being stored in memory cells including a defective memory cell. Thus, claim 6 is characterized by a way to generate the replacement data. That is, in claim 6, an address storage circuit detects whether or not the memory cells which store the data selected by the selecting signals include a defective memory cell. Further, a bit storage circuit detects which bit of the data is stored in the defective memory cell. Then, a switching circuit inverts the defective bit of the data outputted from the read only storage device in response to the inverted signal outputted from the bit storage circuit and outputs the data whose defective bit is inverted instead of the data outputted from the read only storage device.

The semiconductor device according to claim 7 has a switching device which outputs replacement data instead of original data outputted from one of a plurality of read only storage devices, the original data being stored in memory cells including a defective memory cell. The switching device has an address storage circuit which can store address information of a defective memory cell of the read only storage devices. The switching device outputs replacement data if a defective memory cell is included in the memory cells of the read only storage device selected by selecting signals and an address signal. Further, the address storage circuit can store memory cell information of a defective memory cell of a rewritable storage device. Thus, if a defective memory cell exists in the memory cells of the rewritable storage device, redundancy memory cells of the rewritable storage device are selected instead of the memory cells including the defective memory cell.

The Applicants have carefully reviewed the Hotta patent. Although the devices disclosed in the Hotta patent do include certain structural features (read only storage devices, selecting an address signal line, switching devices) which are the same as or similar to those of the present invention, the Hotta patent clearly discloses a semiconductor device in which there is a 1-to-1 correspondence between a read only storage device and a switching device. Thus, the switching device of the semiconductor device disclosed in the Hotta patent replaces data in a group of memory cells including a defective cell with replacement data at every group of the memory

cells and then outputs all of the data. That is, Hotta does not disclose or suggest a semiconductor device having the above-described features as called for in amended claims 2 and 3 and new claims 6 and 7. It is therefore respectfully submitted that the Hotta patent does not anticipate any of the currently pending claims and, therefore, the rejection under 35 U.S.C. § 102(b) should be withdrawn.

Application No. 10/728,497
Reply to Office Action of May 1, 2006

Conclusion

In view of the foregoing Amendment, as well as the detailed discussion presented in the "Remarks" section, it is respectfully submitted that the present application, including claims 2 and 3 as amended and new claims 6 and 7 is in condition for allowance and such action is respectfully solicited.

Respectfully submitted,

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Enclosures: Petition for Extension of time (1 month)

Attachments: Replacement Drawing Sheets 2/14, 3/14 13/14 and 14/14
Replacement Abstract of the Disclosure -- page 49